

carry out a negotiation phase in which compatible modulation, compression, and error correcting protocols are selected. In order to reduce the time needed to set up the communication session, a particular set of protocols is preselected, for example as the "lowest" common protocol that all vehicles support. The server system expects communication using this lowest protocol. This allows data to flow as soon as possible without waiting for the protocol negotiation phase to be completed. Since the amount of data to be transferred is relatively small, the time taken in negotiating the best protocols would likely be larger than the time saved by sending the data using the negotiated protocol rather than with the preselected protocol.

3.2.4 Route Planning

Route planning at the server system (line 1561, FIG. 15B) uses well known route finding approaches. In particular, two instances of the well-known A* ("A-Star") graph search algorithm are used in conjunction with road network 700 (FIG. 700). One instance of the A* algorithm starts at the starting location and one starts "backwards" from the desired destination. The A* algorithm is a type of "best first" search approach. At any point executing the algorithm, the actual distance along the graph from an initial node to a set of intermediate nodes has been computed. A lower bound (or in some versions of the algorithm, an estimate) of the distance from each of the intermediate nodes to the final node is added to the actual distance. The intermediate node with the lowest sum is extended. If the lower bounds are used, this algorithm produces the shortest path from the initial node to the final node. Using the

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